

### REMARKS

Applicants have amended claim 5 to replace the term “consist in” with “consist of” and have amended claim 11 to depend from claim 1. No new matter is introduced.

Upon entry of the proposed amendments, claims 1-5, 7-9, 11, 16-19 will be pending.

#### Claim Objections

The Examiner has objected to claims 2-5, 7, 9, 11, and 17.

The Examiner alleges that claims 2-4, 7, 9, and 17 are unclear as to which additional steps in the method are being set forth. Applicants respectfully disagree with the Examiner's ground for the objections. It is Applicants' understanding that claims 2-4, 7, 9, and 17 are clear as stated and there is no need to recite any additional steps in these claims. For example, claims 2-4, 7, 9, and 17 depend from claim 1, either directly or indirectly, while claim 1 is not objected to. These dependent claims only further limit the claims that they depend on, which are as shown below.

Claim 2 further limits “the element capable of causing a chemical shift and included in the contrast product” of claim 1.

Claim 3 further limits “the lanthanide” of claim 2.

Claim 4 further limits “the contrast product” of claim 1.

Claim 7 further limits “said observed zone” of claim 1.

Claim 9 further limits “the target” of claim 8.

Claim 17 further limits “the shift between the new resonance frequency and the Larmor frequency” of claim 1.

As Applicants have amended claims 5 and 11, as noted above, Applicants respectfully ask the Examiner reconsider and withdraw the objections.

Rejections under 35 U.S.C. §112

Claims 1-5, 7-9, 11, and 16-19 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner states that “it appears as if the  $B_0$  field referred to includes gradient in the claims, but is disclosed as a static field in the specification and in typical notation.” See the Office Action at page 3.

Applicants respectfully disagree with the Examiner because the specification has sufficiently described the  $B_0$  field to include gradients. Applicants hereby reproduce two paragraphs from the specification as follows.

Page 2, lines 11-15 of the specification provides:

Gradients of the magnetic induction  $B_0$  can be used in various spatial directions, so as to have different induction values between two points in space, each corresponding to an elementary volume of the body in question (emphasis added).

The specification further provides:

The body 4 is placed, immediately before or after injection of the contrast product, in a system that surrounds a part of the body and that is capable of generating a high-amplitude magnetic induction  $B_0$ . This induction comprises gradients in principle directions in space according to the type of information that it is desired to acquire. For example, if it is desired to obtain magnetic resonance signals for elementary volumes in three-dimensional space, it will be advisable to introduce coding gradients  $G_x$ ,  $G_y$  and  $G_z$  for the magnetic induction  $B_0$  in three main perpendicular directions (x, y, z) in space, in a manner known in itself. By means of this technique, magnetic induction values that are different between elementary volumes of the body 4 are ensured (emphasis added) (see page 9, lines 8-22).

As can be seen, as opposed to the Examiner's assertion that the present specification describes the  $B_0$  field as a static field, the  $B_0$  field indicated in the specification includes gradients. For example, the specification explains that gradients of the magnetic induction  $B_0$  can be used in various spatial directions (see page 2, lines 11-15). The specification also provides that after a high amplitude magnetic induction  $B_0$  is generated, this induction comprises gradients in principle directions in space (see page 9, lines 8-22). As such, Applicants submit that the specification has adequately described the  $B_0$  field to include gradients. Thus, Applicants respectfully ask the Examiner withdraw the rejection under 35 U.S.C. §112.

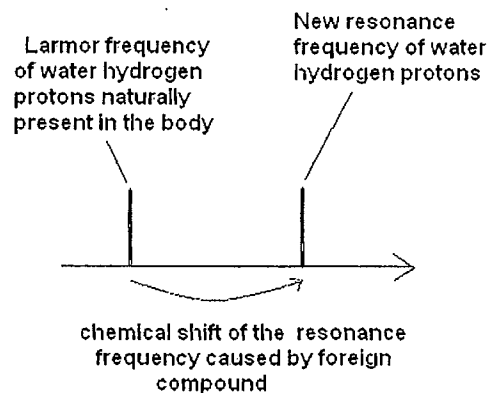
Rejections under 35 U.S.C. §103

Claims 1-5, 7-9, 11, and 16-19 are rejected as being unpatentable over Meade *et al* (U.S. Patent No. 6,770,261) ("Meade") in view of Driehuys *et al* (U.S. Patent Application Pub. No. 2003/00604023) ("Driehuys") (It appears that Driehuys should be U.S. Patent Application Pub. No. 2003/0064023, instead of 2003/00604023). Applicants respectfully disagree.

The present claims are directed to methods for acquiring electromagnetic signals. All of the claims include the following step:

a) injecting, into said body part, an amount of contrast product capable of being temporarily fixed in or of passing through an observed zone of said body part, said contrast product comprising at least one element capable of causing a chemical shift of a resonance frequency of water hydrogen protons.

Thus, in the present claims, an injected contrast product causes a chemical shift of a resonance frequency of water hydrogen protons that are **naturally present** in the body.



Therefore, the claimed methods do not concern a chemical shift of a resonance frequency of a **foreign compound** that is injected into the body.

The secondary reference relied on by the Examiner, Driehuys, discloses a chemical shift in a method in which the physico-chemical environment causes a chemical shift of a resonance frequency of a **foreign compound**:  $^{129}\text{Xe}$  (see Driehuys, Figures 1 to 2b and Paragraphs [0042] to [0044]). As opposed to the Examiner's characterization, Driehuys does not disclose that the

foreign compound causes a chemical shift of a resonance frequency of a **naturally present** compound. As such, Driehuys does not teach or suggest the claimed methods that require a chemical shift caused by the contrast product of the water hydrogen protons **naturally present** in the body.

Now turning to the primary reference Meade, the Examiner concedes that Meade “fails to disclose determination of chemically shifted resonance frequencies and selective excitation of the body so as to acquire magnetic resonance signals of selective portions of the body which has undergone chemical shift (emphasis added).” According to the analysis of Driehuys above, this secondary reference cannot cure the deficiencies in Meade. Since Driehuys only teaches monitoring the behavior of a foreign compound (e.g.,  $^{129}\text{Xe}$ ), the two references, even though combined, the result would not be the methods covered by the present claims which require a chemical shift of a resonance frequency of water hydrogen protons that are naturally present in the body. Thus, the present claims are not obvious.

In view of the foregoing, Applicants respectfully ask the Examiner withdraw the rejection under 35 U.S.C. §103.

#### CONCLUDING FORMALITIES

Applicants believe that the application is now in condition for allowance, which action is requested.

The fee for the three month extension is being paid concurrently herewith on the Electronic Filing System (EFS) by way of a Deposit Account authorization. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 19320-0002US1.

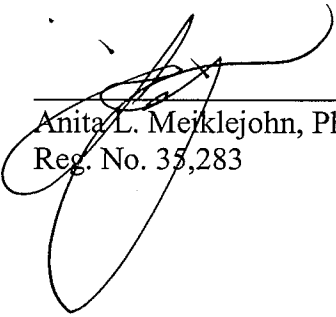
Applicant : Jean-Michel Franconi *et al.*  
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Page : 10 of 10

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Respectfully submitted,

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